

What is claimed is

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1. A membrane element comprising a core (9) and a sheath which encapsulates the core, where the sheath is formed from polymer films (10) which overlap one another at least to some extent and have been fused to one another in the area of the overlap.
- 10 2. A membrane element as claimed in claim 1, wherein the polymer film (10) is a polypropylene film or polyester film.
- A 3. A membrane element as claimed in claim 1 ~~or 2~~, wherein the polymer film (10) has at least one functionalized surface.
- 15 4. A membrane element as claimed in claim 1, ~~2 or 3~~, wherein the polymer film (10) is a coextruded film.
- A 20 5. A membrane element as claimed in claim 4, wherein the coextruded film (10) is composed of a base layer and of at least one outer layer, where the melting point of the outer layer polymer is lower than that of the base layer polymer.
- 25 6. A membrane element as claimed in claim 5, wherein the melting point of the outer layer polymer is from 70 to 130°C.
- 30 7. A process for producing a membrane element, in which a membrane core (9) is provided with a sheath by winding a functionalized polymer film (10) around the membrane core (9), where individual layers (11) of the polymer film (10) overlap one another, at least in some areas, and energy is supplied to fuse
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the polymer films to one another at least in these areas.

8. The process as claimed in claim 7, wherein the  
5 polymer film (10) is wound as a layer spirally  
around the membrane core (9), where the individual  
laps of the layer (11a) overlap to some extent.

10 9. The process as claimed in claim 7, wherein the  
polymer film (10) is wound as a layer spirally  
around the membrane core (9), where the individual  
laps of the layer (11b) are laid alongside one  
another, without overlapping each other, and form a  
first layer, and where at least one further layer of  
15 polymer film (10) layers lying alongside one another  
is wound over the first layer, and this is then  
fused to the layer lying thereunder.

20 10. The process as claimed in claim 7, wherein the  
thickness of the sheath is from 0.3 to 28 mm.

25 11. The process as claimed in claim 8 ~~or 9~~, wherein the  
width of the layer (10) is from 10 to 100 mm.

30 12. The process as claimed in claim 8 ~~or 9~~, wherein the  
width of the layer (10) is from 100 to 2000 mm.

35 13. The process as claimed in claim 11, wherein the  
layer (10) is wound with a web tension of from 1 to  
500N.

14. The process as claimed in claim 12, wherein the  
layer (10) is wound with a web tension of from 100  
to 1000N.

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